EESAT 2000 Session Topics & Authors

SEPTEMBER 18-20, 2000
Orlando, Florida

Monday, September 18, 2000

8:30 am - 9:00 am

Welcoming Remarks
Dr. Imre Gyuk, DOE; Dr. Philip Symons, ESA

Keynote Address

Distributed Resources, New Paths for Power
Bill Parks, DOE

9:00 am - 10:15 am — Session #1

Overview of Energy Storage Applications & Technologies
Chair: Anthony Price, Innogy

Capturing Value with Energy Storage in the Energy and Reserve Markets
Frank Graves, Thomas Jenkin, & Dean Murphy,The Brattle Group

What a "Good" Energy Storage System Would Look Like to a Large Utility
Allan Ingram, Bonneville Power Administration

IBERDROLA's Technology Demonstration Center, Novel Technological Projects Location
Jesus Garcia, Jose F. Moles, & Enrique Vega, IBERDROLA

10:45 am - 12:25 pm — Session #2

Multi-Mega Watt Applications
Chair: Steve Eckroad, EPRI

Recent Developments in the Design and Applications of a Utility-Scale Energy Storage Plant
Anthony Price & Barry Davidson, Innogy Technology Ventures

Advanced NAS Battery System
Akiyasu Okuno, Makoto Kamibayashi, & Kouji Tanaka, Tokyo Electric Power Co.

Update on the Golden Valley Electric Association BESS
Stan Sostrom, POWER Engineers

A Review of the Operation of a Large Scale, Demand Side Energy Management System Based on a Valve Regulated Lead-Acid Battery Energy Storage System
George W. Hunt & Christopher B. John, GNB Technologies

12:25 pm - 2:00 pm

Keynote Address

A Venture Capitalist Perspective on Energy Storage Technologies
Rich Aube, The Beacon Group Energy and Investment Fund

2:00 pm - 3:40 pm — Session #3

Lead-Acid Battery Applications
Chair: Garth Corey, Sandia

Are Valve-Regulated Lead-Acid Batteries Reliable? An End-User Perspective
Mindi Farber De Anda & Jennifer Dunleavey, Energetics

Examination of VRLA Battery Cells Sampled from the Metlakatla Battery Energy Storage System
Joseph Szymborski & George Hunt, GNB; Rudolf Jungst, Sandia National Laboratories

Online Impedance Testing of Storage Cells
Peter E. Langan, AVO International-Biddle Instrument Group

The Energy and Life Benefits of Charging Lead Acid Cells Individually by a Battery Management System
Charles E. Burns, AutoCap

4:10 pm - 5:00 pm — Session #4 (Part 1)

Systems Analysis
Chair: Brad Roberts, S&C Electric

A National Initiative to Characterize Transmission Power Quality
Steven G. Whisenant, Duke Power

Intelligent Energy Distribution Networks through the Use of Innovative Decentralized Generation, Storage, Information and Communication Systems
Herbert Schmidt, Fraunhofer Institute for Solar Energy Systems; Gerhard Weissmueller, Stadtwerke Karlsruhe; Thomas Stephanblome & Erik Hennig, EUS; Dusan Povh, Siemens

Tuesday, Sept. 19, 2000

9:00 am - 10:40 am — Session #4 (Part 2)

System Analysis
Chair: John Boyes, Sandia

Integration of Renewable Generation into the UK Market - Opportunities for Energy Storage
Graeme Bathurst, Goren Strbac, & Nick Jenkins, Manchester Centre for Electrical Energy

The Cost and Benefits of Electrical Energy Storage
Alan Collinson, EA Technology

Evaluation and Technology Review of Energy Storage for the PREPA System
Agustin A. Irizarry-Rivera, University of Puerto Rico-Mayaguez; Wenceslao Torres & Efran Paredes, Puerto Rico Electric Power Authority

Data Management for Fielded Energy Storage Systems
Garth P. Corey & Paul C. Butler, Sandia National Laboratories; Mindi J. Farber-DeAnda, Energetics; Kurt W. Klunder, Sentech; Jeffrey D. Newmiller, Endecon Engineering; Benjamin L. Norris, Gridwise Engineering Company

11:00 am - 12:15 am — Session #5A (Part 1)

Applications of Flywheels and SMES Systems
Chair: Gerard Thijsen, KEMA

Recent Developments on micro-SMES System Project at the University of Bologna
P. G. Albano, C. A. Borghi, M. Breschi, D. Casadei, A. Cristofolini, M. Fabbri, G. Grandi, P. La Cascia, F. Negrini, U. Reggiani, P. L. Ribani, C. Rossi, G. Serra, & A. Tani, University of Bologna

Development of a 1 kWh/1 MW Module-Type SMES
Hidemi Hayashi, Tsuneo Sannomiya, Hitoshi Kanetaka, Katsuya Tsutsumi, & Fujio Irie, Kyushu Electric Power; Maseru Tezuka, Toshiba Corporation; Katsuhiko Asano, Hitachi Ltd. Hitachi Works; Shinichi Nose, Fuji Electric R&D; and Hidemasa Yamamura, Kobe Steel

Development of Long-life, Low-maintenance Flywheel Electricity Systems
A. C. Day & M. Strasik, Boeing Phantom Works; J. Wood, Jack Wood Associates; P. Taylor & L. C. Johnson, Energetics

11:00 am - 12:15 pm — Session #5B (Part 1)

Customer Applications
Chair: Jesus Garcia-Martin, IBERDROLA

Energy Storage for Industrial Processes
Kim L. Craven, Duke Power; Roger Lawrence, RGLsolutions.com

Advanced Electrochemical Capacitors for ASD Ride-Through and UPS Power Conditioning Applications
Tom Geist, Rick Langley, & Arshad Mansoor, EPRI PEAC Corporation; Ben Banerjee, EPRI

Operation Experience with Magnetodynamic Flywheel Storage Systems in Public Transport Buses
Gerhard Reiner & Werner Weck, Magnet-Motor

1:30 pm - 2:45 pm — Session #5A (Part 2)

Applications of Flywheels and SMES Systems
Chair: Erik Hennig, EUS

Flywheel Energy Storage System with Superconducting Magnetic Bearing
Makoto Hirose, Akio Yoshida, Hidetoshi Nasu, &Tatsumi Maeda, Shikoku Research Institute

Development of 1 kWh Flywheel Energy Storage System with Superconducting Magnetic Bearing
Naoji Kashima & Shigeo Nagaya, Chubu Electric Power; Masaharu Minami, Hiroshi Kawashima, & Shigeru Unisuga, Mitsubishi Heavy Industries

Active Filter with Integrated Flywheel
Rainer Harke, EUS; Martin Kleimaier, RWE Energie; Ulrich Kriegler, Piller; Martin Langer, TEAM

1:45 pm - 2:35 pm — Session #5B (Part 2)

Customer Applications
Chair: Jesus Garcia-Martin, IBERDROLA

Vanadium Redox Flow Battery System for Use in Office Buildings
Nobuyuki Tokuda, Yasutaka Miki, Hiroo Arai, & Kei-ichi Yamamoto, Kansai Electric Power; Katsuji Emura, Kenji Motoi, Tsuyoshi Shinzato, & Takashi Kanno, Sumitomo Electric Industries

Power Quality Evaluation of Mobile UPS Installation at S&C Electric Company
Ernst H. Camm & Brad Roberts, S&C Electric Company

3:15 pm - 4:30 pm — Session #6

Applications using Lithium Battery Systems
Chair: Dr. Imre Gyuk, DOE

The Practical Application of Lithium Ion Batteries in Energy Storage and Other Stationary Applications
J. McDowall, S. Oweis, G. Laucournet, G. Chagnon, & T. Sack, Saft America

Characteristics of Lithium Secondary Batteries Developed as a part of the Japanese National Project for Electric Vehicle and Home-Use Load Leveling Systems
T. Iwahori, K.Takei, Y. Mita, H. Miyashiro, Y. Kobayashi, K. Kumai, K. Ishihara, & T. Tanaka, Central Research Institute of Electric Power Industry (CRIEPI)

Development of 250 Wh-class Long Life Lithium Secondary Batteries and 2 kWh-class Module using a Graphite-coke Hybrid Carbon Negative Electrode For Home-use Load-leveling Systems
Atsuhiro Funahashi, Katsunori Yanagida, Yoshinori Kida, Toshiyuki Nohma, & Ikuo Yonezu, SANYO Electric

4:30 pm - 5:20 pm — Session #7

Utility Applications of Sodium Sulfur Battery Systems
Chair: Dr. Philip Symons, ESA

Development of a 100kW NAS Battery-Based System for Combined Power Quality and Peak Shaving Applications
Norikazu Ichikawa, Kyushu Electric Power; Tomio Tamakoshi, NGK Insulators; Yoshisuke Watanabe, Kyushu Transformer

Pulse Power Performance of NAS Batteries for Combined Power Quality and Peak Shaving Applications
Kouji Tanaka, Tokyo Electric Power; Taku Oshima, & Hiroyuki Abe, NGK Insulators

Wednesday, September 20, 2000

9:00 am - 10:15 am — Session #8

Power Conversion Systems
Chair: Bill Erdman, Xantex-Trace Technologies

Advanced Power Electronics and HTS Technology for SMES: Demonstration Results
Matthew J. Superczynski, Dengming Peng, Nikola Celanovic, & Dusan Borojevic, Virginia Tech; Ronald L. Holtz & Donald U. Gubser, Naval Research Laboratory

Integration of a FACTS and Battery Energy Storage
Z. Yang, C. Shen, L. Zhang, & M. L. Crow, University of Missouri Rolla; S. Atcitty, Sandia National Laboratories

Emitter Turn-Off Thyristor (ETO) based Converters for Energy Storage
Kevin Motto, Yuxin Li, Aaron Xu, & Alex Q. Huang, Virginia Polytechnic Institute and State University

10:45 am - 12:00 pm - Session #9 (Part 1)

Renewable and Distributed Energy Applications
Chair: Jim McDowell, Saft

Opportunities for Energy Storage Devices Operating with Renewable Energy Systems
Andrew Cruden & Graham J. W. Dudgeon, CERPD, University of Strathclyde

Assessing Battery Performance with Distributed Energy Technology Simulators
Mindi Farber De Anda & Howard Lowitt, Energetics

Photovoltaic Hybrid Test Facility: System Evaluation of Yuasa VRLA/GEL Batteries (including Interface Issues)
Robert L. Hammond & Spencer Everingham, Arizona State University; Garth Corey, Sandia National Laboratories; Herb Hayden, Arizona Public Service; Jeff Rissmiller, Yuasa; Doug Blodgett, Trace Technologies

1:30 pm - 2:45 pm - Session #9 (Part 2)

Renewable and Distributed Energy Applications
Chair: Joseph Iannucci, Distributed Utility Associates

Development of Design Practices for PV/Battery Remote Area Power Supplies
Edward G. Skolnik, Brian Marchionini, & Ndeye K. Fall, Energetics; Paul C. Butler, Sandia National Laboratories; Carl D. Parker, The International Lead Zinc Research Organization

The 400kWh ABESS for the Detroit Edison Company
Peter J. Lex, ZBB Energy Corporation

2:45 pm - 4:00 pm - Closing Session

Chair: Dr. Toshikatsu Tanaka, CRIEPI

Energy Storage Concepts for a Reconstructed Electric Utility Industry
Joseph J. Iannucci, Distributed Utility Associates

Power Delivery in a Digital World
Imre Gyuk, Dept. of Energy

Closing Remarks

Dr. Philip Symons, ESA